

40 YEARS OF BIOLOGY AT THE LAB

1963 1970



May 31, 1963
John W. Golman, Associate Director, Biomedical Research, focuses the program on the genetic and immunological consequences of radiation damage

FY 63 Funding \$17M

1963
Established the biomedical program to study the effects of fallout and resulting dose to humans

1964
First animal facility opens, housing four dairy cows in railroad box cars

1964
Research team develops early laboratory methods for analyzing blood plasma fats and red blood cells

1965
A semiautomated technique for analyzing chromosome shape and size is developed

1965
Pioneering work starts in the dynamics of cell multiplication

1965
Permanent dairy barn built



1967
Ecological survey of Amchitka Island begins. Study provides background data for an underground nuclear test in 1971

1968
Biomed researchers produce dramatic 3-D images of organelles. The feat had never been accomplished before

1969
Scientists use radioactive tracer to track movement of water in rain forest. The results help clarify the fate of tritium in the environment



1969 CHEMISTRY & BIOMEDICAL RESEARCH



FY 70 Funding \$21M

1970
Work on the entry of tritium into the chromosomes of kangaroo rats near the Sedan Crater leads to the discovery that large quantities of satellite DNA in the rats offer an excellent model to study chromosomes

1971
Division's capability to predict fate of radionuclides in the environment is applied to estimate potential effects of an underground nuclear test gone awry

1972
Biologists draft sea urchins to determine the effect of environmental pollutants on man by looking at impact on urchin sperm

1972
Flow cytometry comes to LLNL

1972
Chromosome DNA content measurements by CYDAC

1973
CYDAC studies show unsuspected small differences in chromosomal DNA content among supposedly normal persons

1973
Research clarifies the way in which genes are turned on and off and shows how errors in reading genetic code can be self-perpetuating

1973
Plasma membrane may be target of radiation effects



1972 - Associate Director
Mort Mendelsohn, PhD, MD



1972 BIOMEDICAL PROGRAM



1974
Studies on absorption of radioactive fallout by cows and its later appearance in milk have evolved into a study on fossil fuel pollutants in milk

1974
Low-dose studies find levels of Tritium usually considered permissible is shown to reduce the number of female germ cells in young mice

1974
First minicomputer at Bio-Med

1974
First measurements of DNA content in human chromosomes

1974
Institutional Review Board formed (LLNL Committee on Human Subjects & Research) formed



1975
First flow karyotyping

1975
Chromosome sorting starts

1976
Established Institutional Animal Care and Use Committee (IACUC)

1976
First computer network at BBRP

1978
Began use of Ames Test

1978
Food mutagen project started

1978
Sister chromosome exchange

1978-1980s
CHO lines with resistance to radiation and other mutagens produced

1979
Monoclonal Antibody production begins

1979
Dual laser flow cytometry

1979
First Apple II computer purchased at LLNL for Lab use. Used for chromosome analysis in Tony Carrano's lab, procurement required written justification that a personal computer could be used for science



1976 BIOMEDICAL & ENVIRONMENTAL RESEARCH

